

ATTENTION-DEFICIT/HYPERACTIVITY DISORDER
DIAGNOSTIC ASSESSMENT METHODS USED BY
ADVANCED PRACTICE REGISTERED NURSES

by

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ABSTRACT

This nonexperimental, exploratory research study used a self-administered questionnaire to gather data from advanced practice registered nurses (APRNs) in Utah. The sample was a nonprobability, purposive sample of all APRNs located on the mailing list obtained from the Division of Occupational and Professional Licensing, who diagnosed children with attention-deficit/hyperactivity disorder (ADHD), treated the disorder, or did both. Each APRN was asked to complete the brief paper-and-pencil questionnaire, which took approximately 10 to 15 minutes, and to return within 3 weeks. Each envelope contained a questionnaire, cover letter, and a self-addressed return envelope. The total number of questionnaires sent in the mail was 926 and 526 were returned. Response rate was 48%; however, the total number of eligible participants in the study was 101.

The results of this study imply that the majority of APRNs who diagnose and treat children with ADHD are family nurse practitioners (58.4%) who are employed in a family practice setting (32.7%). APRNs diagnose children with ADHD 83.2% of the time and treat this disorder 98.0% of the time in their practices. Most APRNs reported that they were *very comfortable to comfortable* with making an ADHD diagnosis (52.5%), and 64.4% reported the same level of comfort with treating ADHD. These findings indicate that the majority of APRNs who work with children are comfortable with diagnosing and treating ADHD.

Diagnosis and treatment planning of ADHD should never be based solely on the results of a single diagnostic method. Diagnosis can be made reliably through the organized use of multimethod, multiinformant assessment techniques and appropriate diagnostic criteria. When comparing the American Academy of Pediatrics' clinical practice guideline to the APRNs' reported diagnostic practices of children with ADHD, the APRNs followed the guideline more closely than did other primary care providers (family physicians and pediatricians).

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CHAPTER 1

INTRODUCTION

Attention-deficit/hyperactivity disorder (ADHD) is one of the most common disorders treated by child and adolescent psychiatrists in the United States, with this group of children constituting as many as 50% of children in psychiatric clinic populations (Clarke, Barry, McCarthy, & Selikowitz, 2002). Reports have shown that ADHD affects between 4% and 12% of school-age children or as many as 3.8 million U.S. children (American Psychiatric Association, 1998; Clarke et al., 2002; Guevara, Lozano, Wickizer, Mell, & Gephart, 2001). ADHD is the second most common chronic illness in children, after asthma, and is the most commonly diagnosed behavioral disorder (Guevara et al., 2001; "Leading Medical Experts Join Forces," 2003).

ADHD symptoms are characterized by developmentally inappropriate levels of inattention, concentration, and hyperactivity with or without impulsivity and are present before the age of 7 years, all producing clinically significant impairment in two or more settings (home, school, work, or socially) ("Leading Medical Experts Join Forces," 2003). Clarke and colleagues (2002) noted, "ADHD is a persistent problem that may change with development from preschool through adulthood and interferes with many areas of typical development and functioning in a child's life" (p. 31), with symptoms persisting into adulthood in approximately 60% of patients

("Leading Medical Experts Join Forces," 2003).

Even though ADHD has been recognized as a serious medical condition for more than 20 years by the American Psychiatric Association, American Academy of Pediatrics, and American Academy of Child and Adolescent Psychiatry, it continues to be misdiagnosed and misunderstood ("Leading Medical Experts Join Forces," 2003). No empirical markers identify ADHD; therefore, ADHD subtypes are diagnosed on the basis of behaviors (Chermak, Tucke, & Seikel, 2002). The difficulties that these children experience often result in impaired life functioning, making appropriate diagnosis and treatment essential (Jensen & Larrieu, 1997).

Criticism of an ADHD diagnosis revolves around the inconsistent nature of the disorder, with a considerable degree of overlap between ADHD and other disorders, difficulties in accurate measurement, and inconsistency with primary care practice diagnostic methods (McGee & Share, 1988). The diagnosis of ADHD has become highly prevalent in primary care practice; however, primary care assessment of ADHD lacks standardization (American Academy of Pediatrics, 2000; Walker, LaGrone, & Atkinson, 1989; Wasserman et al., 1999). Little is known about the primary care providers' (PCPs) assessment of children presenting with ADHD (Gardner et al., 2000; Wasserman et al., 1999), and scant material is available with regard to advanced practice registered nurses' (APRNs) diagnostic methods used to identify and diagnose children with ADHD.

The primary aim of this study was to explore ADHD diagnostic practices among APRNs in Utah. Currently, there are no known specific objective

measurement scales to diagnose ADHD; therefore, APRNs must be aware of the measurement scales available to them and their limitations. Despite a great deal of research, this disorder remains one of the most difficult child psychosocial disorders to categorize as evidenced by the frequent changes in its criteria in the many revisions of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) (Wolraich, Hannah, Pinnock, Baumgaertel, & Brown 1996). It is important to acknowledge what APRNs are utilizing in their practices to initially diagnose this prevalent psychosocial childhood disorder. Properly identifying and treating ADHD has proven beneficial for the child's long-term outcome.

Purpose

The purpose of this thesis was to explore diagnostic practices among APRNs in Utah who encounter children suspected of having an ADHD diagnosis. The objectives were to identify the role APRNs play in the early recognition and diagnosis of children with ADHD symptoms to determine: (a) if they diagnose ADHD in their practices, (b) if they treat ADHD in their practices, (c) if they use standardized diagnostic methods to make a diagnosis of ADHD, (d) the diagnostic assessment methods most commonly utilized by APRNs, (e) the perceptions of these measurement scales, (f) provider suggestions for standardizing ADHD diagnostic practices, (g) the tribulations associated with the use of current diagnostic practices in the diagnosis of ADHD, and (h) demographic information about the participating APRNs. I did not intend to provide an extensive critique of all the diagnostic methods that have been used to evaluate ADHD. Only those

diagnostic methods that represent the most typically used in primary care were examined.

Statement of the Problem

Many problems are associated with the diagnosis of ADHD. This disorder is highly prevalent in primary care practice; however, primary care assessment lacks standardization (American Academy of Pediatrics, 2000; Walker et al., 1989; Wasserman et al., 1999). Little is known about APRNs' assessment of children presenting with ADHD (Gardner et al., 2000; Wasserman et al., 1999), and scant information is available with regard to APRNs' detection of childhood psychosocial disorders (Gardner et al., 2000). Other problems identified included the subjective nature of the measurement scales commonly used and the similarities of ADHD diagnosis with other comorbid (coexisting) disorders that result in an inaccurate diagnosis and treatment.

Theoretical Framework

The practice of an APRN is unique; in other words, it includes the combination of nursing and medicine (Shuler & Huebscher, 1998). In the Nurse Practitioner Practice Model, Shuler and Huebscher (1998) showed that APRNs provide holistic and humanistic care that incorporates health maintenance, health prevention, and wellness care management. This APRN model also describes the importance of encompassing wellness and the traditional nursing roles of diagnosing and treating human responses to health problems as well as medicine's

role of diagnosing and treating the condition itself (Shuler & Davis, 1993).

Shuler and Davis (1993) noted that the Nurse Practitioner Practice Model provides a guide for APRNs to follow:

(a) conducting holistic patient assessments; (b) identifying potential and actual health and health-related problems; (c) evaluating patient responses associated with the problem area(s); (d) diagnosing acute and chronic illness; (e) developing and implementing treatment plans that include pharmacological and nonpharmacological components; (f) including the patient and family as active participants in the treatment plan development phase; (g) focusing the NP [nurse practitioner]/patient interaction on wellness (health promotion and disease prevention) and self-care; (h) evaluating patient outcomes; and (i) conducting NP self-evaluation, (p. 12)

The aspects of this model that guided the study include the following:

(a) gathering information about patients by assessing their needs, (b) making clinical decisions, (c) identifying problems, (d) making an initial diagnosis, and (e) developing intervention methods. Shuler and Huebscher (1998) reported that identifying the patient's unmet health care needs is the first step in (a) discovering specific health problems, (b) formulating a diagnosis, and (c) making health referrals. Concepts from this model helped focus the development of the questionnaire with regard to the utilization of diagnostic assessment methods APRNs use in making an initial assessment and diagnosis of children with ADHD symptoms.

Significance To Nursing

Of the literature reviewed, no studies were found regarding the diagnostic practices of APRNs when encountering children suspected of having an ADHD

diagnosis. All of the studies reviewed addressed the PCP (i.e., pediatricians and family physicians) managing the diagnosis of psychosocial disorders among children (e.g., ADHD) as either pediatricians or family practice physicians. The literature review highlighted that the diagnosis of ADHD was being encountered more frequently in primary care settings where PCPs may be the first to recognize this problem, usually during a routine or well-child visit. The majority of parents do not seek mental health specialists if they suspect that their children have a disorder; however, they may seek treatment from their PCP. Consequently, it is important to recognize that APRNs are encountering the diagnosis of children with ADHD in their practices more frequently; therefore, they need to be competent in the initial identification and diagnosis of this disorder. APRNs also need to be competent in the management of this disorder. Information should be gathered to identify how APRNs are initially assessing and diagnosing this disorder in their practices. Keys to the successful identification and diagnosis of ADHD in children require APRNs to have (a) valid and reliable assessment techniques and (b) to use diagnostic assessment tools to assist them in the initial diagnosis of the disorder.

Although illness prevention and wellness promotion are the primary roles of APRNs, the initial diagnosis of a psychosocial disorder may also be an important component of their practices. As PCPs, APRNs may be called upon to evaluate, diagnose, and treat children presenting with ADHD. APRNs are expected to have the knowledge and skill to evaluate, diagnose, and treat or refer each patient as necessary.

Research Questions

Due to the exploratory nature of this study and the fact that this study was not designed to include experimental interventions, research questions rather than hypotheses were employed. Research questions that guided data collection and analysis were as follows:

1. What are the roles APRNs play in the early identification and diagnosis of children with ADHD symptoms?
2. What are the APRNs' perceived comfort levels in the diagnosis and treatment of children with an ADHD diagnosis?
3. Do APRNs perceive the need for further education to make an initial diagnosis of ADHD?
4. What are the current diagnostic assessment methods most commonly used by APRNs to achieve an initial diagnosis of ADHD in children?
5. To what extent do APRNs perceive the ADHD diagnostic methods utilized in their practice setting to be accurate?
6. What difficulties do APRNs experience with the use of the current ADHD diagnostic assessment methods?
7. What suggestions do APRNs have with regard to standardizing ADHD diagnostic practices?

Operational Definitions

Advanced practice registered nurse (APRN) is an individual who has obtained his or her master's degree in nursing. This title may incorporate licenses such as pediatric nurse practitioner, family nurse practitioner, adult nurse practitioner, neonatal nurse practitioner, certified nurse midwife, and clinical nurse specialist.

Attention-deficit/hyperactivity disorder (ADHD) is a common mental health disorder in children that is characterized by a developmentally inappropriate level of inattention and hyperactivity with or without impulsivity that impairs functioning at home, school, social situations, or all of the above (Batshaw, 2002).

Primary care providers (PCPs) are health care professionals who may assess, diagnose, and treat disorders in primary health care. For the purpose of this thesis, the title PCP addressed pediatricians and family physicians.

Associated Terms

Attention-deficit/hyperactivity disorder-inattentive type (ADHD-I) is a subtype of ADHD in which the child does not display significant levels of hyperactivity but has significant problems in maintaining attention (Batshaw, 2002).

Attentional and hyperactivity problems include ADHD and similar problems not meeting the full criteria of ADHD (Wasserman et al., 1999).

Auditory processing disorder is a sensory-perceptual deficit associated with auditory selective and divided attention deficits that cause difficulty listening in noisy backgrounds, understanding rapid or degraded speech, and having difficulty

following oral directions (Chermak et al., 2002).

Learning disorder/difficulties addresses reading, spelling, mathematics, and general literacy problems that appear to be associated with ADHD.

Pervasive developmental disorders are neurogenetic disorders that may coexist with other developmental disabilities such as mental retardation, inattention, hyperactivity, and epilepsy (Batshaw, 2002).

Reading disorders are defects in the processing or interpretation of written words characterized by difficulties in word decoding that usually reflect insufficient phonological processing (Batshaw, 2002).

Diagnostic Assessment Methods

Achenbach Child Behavior Checklist (CBCL) is a behavior problem checklist that is completed by the child's parent that assesses social competence and behavior problems (Achenbach & Edelbrock, 1983).

Children's Global Assessment Scale is a rating scale used to classify a child's current behavior (Walker et al., 1989).

Conners' Parent Rating Scale (CPRS) is a behavior rating checklist that is used to characterize the patterns of a child's behavior symptoms and aids in the diagnosis of ADHD (Conners, 2000).

Conners' Teacher Rating Scale (CTRS) is a rating scale, completed by the parent and teacher, that is scored on three factors: (a) Conduct Problems, (b) Hyperactivity, and (c) Inattention-Passivity. The scale is used for the diagnosis of ADHD (Conners, 2000).

Diagnostic and statistical manual of mental disorders (3rd ed. rev.) (DSM-III-R) is a revision of the 3rd edition of the manual published by the American Psychiatric Association to set forth diagnostic criteria, descriptions, and other information to guide the classification and diagnosis of mental disorders (American Psychiatric Association, 1987).

Diagnostic and statistical manual of mental disorders (4th ed.) (DSM-IV) lists criteria for the diagnosis of ADHD characterized by inattention, impulsivity, and hyperactivity (American Psychiatric Association, 1998).

Pediatric Symptom Checklist is a questionnaire that is completed by the child's parent who rates the child's symptoms as occurring *often*, *sometimes*, or *never*. This checklist does not indicate a specific diagnosis but reflects a parental impression of the child's psychosocial functioning (Gardner et al., 2000; Jellinek & Murphy, 1990).

CHAPTER 2

LITERATURE REVIEW

A comprehensive review of the literature was conducted that revealed information about ADHD diagnostic practices in PCP. The topics explored were the (a) overdiagnosis and misdiagnosis of ADHD, (b) comorbidities (coexisting conditions) encountered with the diagnosis of ADHD, (c) current diagnostic assessment methods available to diagnose ADHD, and (d) problems involving subjective rating criteria related to the diagnosis of ADHD. Of the research articles reviewed, no studies pertained to APRNs' identification or diagnosis of ADHD among children or APRNs' referral practice of children with ADHD. Therefore, the literature review focused on the diagnostic practices of children presenting with symptoms of ADHD in relation to PCPs such as pediatricians and family practice physicians.

Overdiagnosis and Misdiagnosis of ADHD

In 1997, the American Medical Association's Council on Scientific Affairs reported little evidence of widespread overdiagnosis or misdiagnosis of ADHD in primary care (LeFever & Dawson, 1999). However, the National Institute of Mental Health reported that while millions of children and adults in the United States meet ADHD diagnostic criteria, there is a tendency among some health care

professionals to overdiagnose or underdiagnose the disorder (Costello & Edelbrock, 1985; National Institutes of Health, 1998; Rushton, Clark, & Freed, 2000).

LeFever and Dawson (1999) addressed the extent of medication used for the treatment of ADHD symptoms. The researchers acknowledged the need for additional prevalence studies concerning ADHD overdiagnosis and overtreatment before public and professional concern can be dismissed. A likely reason for the misdiagnosis of ADHD could be due to the current lack of standards for the application of diagnostic criteria utilized in primary care practice.

Comorbidities Encountered With ADHD Diagnosis

The review of literature also highlighted the comorbidities (coexisting conditions) encountered with the diagnosis of ADHD. Pennington, Groisser, and Welsh (1993) compared two common developmental disorders: (a) reading disability and (b) ADHD. The researchers reported that comorbidities were a frequently encountered phenomenon in childhood behavioral disorders. Reading disabilities, learning disorders, less severe pervasive developmental disorders, and auditory processing disorders could produce similar behavioral symptoms associated with ADHD or vice versa due to the overlapping symptomatology (Chermak et al., 2002; Jensen & Larrieu, 1997; McGee & Share, 1988; Pennington et al., 1993).

Wolraich and associates (1996) examined teacher-reported prevalence rates of ADHD based on the DSM-III-R and DSM-IV criteria. They acknowledged that the tribulations associated with the diagnostic criteria for ADHD are due in part to

the disorder being defined by specific behavioral symptoms rather than by an identified etiology of pathophysiology. Although most diagnostic measures are able to differentiate children with ADHD from normal children, they are less consistent in discriminating them from other clinical groups, which is a more crucial demonstration of specificity of the measure of ADHD (Barkley, 1991).

ADHD typical behaviors must be distinguished from similar behaviors associated with other disorders for the proper diagnosis and treatment methods to occur. LeFever and Dawson (1999) suggested that parents and professionals may have misconceptions about the behaviors of young children. These misconceptions could contribute to the high percentage of children receiving psychotropic medications due to the diagnosis of ADHD. The researchers stated that the professionals' appreciation of developmentally appropriate levels of inattention, impulsivity, and hyperactivity should be addressed. Health care providers need to be aware that everyday manifestations of overactivity, impulsivity, or inattention do not necessarily imply the diagnosis of ADHD. Although an independent diagnostic test for ADHD does not exist, a standardized comprehensive evaluation tool is necessary for APRNs to utilize in order to establish a diagnosis and to determine the presence or absence of coexisting conditions.

A Selective Review of Current Diagnostic Methods

A review of literature revealed information about the current diagnostic assessment methods available to diagnose children with ADHD. In many settings, global behavior rating scales are used as a part of screening symptoms of ADHD:

inattention and hyperactivity with or without impulsivity. Currently, the diagnosis and assessment of ADHD rely on the use of observation, questionnaires, rating scales, and evaluation based on DSM-IV criteria as well as assessing for associated (comorbid) conditions (Aaron, Joshi, Palmer, Smith, & Kirby, 2002; American Academy of Pediatrics, 2000). A limited review of diagnostic methods used by PCPs for the assessment of ADHD symptoms is summarized in Appendix A.

Problems With Diagnostic Measurements

The literature review uncovered problems that involved the subjective rating criteria currently used to diagnose children with ADHD. Errors with the diagnosis occur in part because the screening and diagnostic processes for ADHD are time-consuming, complicated, and dependent on the subjective judgment of parents, educators, and diagnosticians. This information is described in Appendix B.

Identification of Psychosocial Problems in Primary Care

As previously noted, the research articles revealed no information regarding APRNs' identification or diagnostic practices of children presenting with ADHD symptoms. Although several studies have reported the detection of childhood psychosocial disorders by PCPs (Costello, 1986; Costello, Edelbrock, Costello, & Burns, 1988; Gardner et al., 2000; Horwitz, Leaf, Leventhal, Forsyth, & Speechley, 1992), information with regard to APRNs is scant (Gardner et al., 2000).

The frequency with which children with psychosocial problems presenting in PCP is growing (Gardner et al., 2000; Kelleher et al., 1997). Most children with psychosocial problems (e.g., ADHD) do not receive special mental health services but are managed in primary care practice (Gardner et al., 2000; Rushton, Bruckman, & Kelleher, 2002). However, many of these children are not being identified within the primary care setting (Costello et al., 1988; Murphy et al., 1998). This implies that children with a possible diagnosis of ADHD are seen in primary care but are not being identified accurately.

Horwitz and associates (1992) examined the identification and management of psychosocial and developmental problems in primary care practice. They discovered that the PCP's recognition of a psychosocial problem occurred in 40% of well-child visits compared to 21% of other types of visits (e.g., acute care). Interestingly, the authors reported that of the children who were well known to clinicians, 35% had problems recognized, whereas of the children who were not well known to clinicians, 23% had problems identified. This finding could have implications for decreased recognition of an ADHD diagnosis due to unfamiliarity with clients. The authors acknowledged that developmental and behavioral issues tend to be discussed during the longer, well-child visit and parents are also less likely to discuss psychosocial issues with a provider they do not know well. This issue is important to note, as APRNs in many health care settings act as the PCP for these children and perform well-child exams.

Jellinek and Murphy (1988) addressed validation studies of the Pediatric Symptom Checklist. These researchers recognized that despite the high prevalence of psychiatric disorders seen in primary care, no standardized diagnostic methods were available for the PCPs to utilize. Horwitz and colleagues (1992) also addressed problems associated with the current diagnostic assessment methods of ADHD symptoms. When pediatricians need to use these methods, they make use of a classification system with which they have little or no experience, and some of the formal diagnostic terms and methods are inconsistent and not commonly used by pediatricians. Because the highly structured psychiatric interviews are not the normal method of assessing psychosocial disorders in the primary care setting, it has been recognized that the PCP should make an informal identification of a psychosocial problem and refer to a psychiatric specialist for the formal diagnosis of a disorder (Costello et al., 1988; Gardner et al., 2000).

Kelleher and colleagues (1997) acknowledged that provider training in pediatrics is associated with increased rates of recognition of psychosocial disorders. However, Gardner and associates (2000) reported that due to the high patient loads seen in most primary care offices, PCPs are not permitted to use advanced mental health training even if they had received it. "Initiatives to increase the role of the primary care practitioner in mental health cannot ignore the challenges of limited office visit time, insurance and reimbursement issues, and referral distribution and access" (Rushton et al., 2000, p. 961). The use of an effective, standardized, screening procedure in the PCP's office that is reliable,

valid, and brief could lead to earlier and more accurate pediatric recognition of psychosocial disorders (Haggerty, 1988; Jellinek & Murphy, 1988).

"The high prevalence of ADHD requires that assessment, diagnosis, and management of this disorder take place within the primary care system; the child mental health care system simply does not have the capacity to address a disorder this common" (Chan, Zhan, & Homer, 2002, p. 511). The need for PCPs to address psychosocial disorders in practice has long been recognized (Chan et al., 2002; Goldberg, Rughmann, McInerney, & Burke, 1984; Horwitz et al., 1992; Wasserman et al., 1999). Nonetheless, according to Chan and associates (2002), PCPs continue to express discomfort and to lack expertise in this area.

Diagnosis of ADHD in Primary Care Practice

Pediatric practice is changing, with a greater need for APRNs to be aware of their patients' psychosocial needs. APRNs are concerned about the early identification, intervention, and prevention of problems throughout their patients' childhoods; however, a major area of child health that has not yielded to a standardized screening process is psychosocial functioning (Jellinek & Murphy, 1990). A systematic method for screening children with possible psychosocial problems is lacking in primary care (Walker et al., 1989).

Jellinek and Murphy (1990) reported that the rates recognizing psychosocial problems in primary care have been between 4% and 7%. In primary care practice, PCPs do not always use formal diagnostic criteria that meet the American Psychiatric Association's diagnostic criteria guidelines (Gardner et al., 2000;

Rowland et al., 2002; Wasserman et al., 1999). In reality, PCPs in an outpatient setting are often limited to a brief assessment and generally have only scant materials from school and outside sources to use when formulating an initial hypothesis regarding the child's psychosocial diagnosis (Jensen & Larrieu, 1997).

In 1999, Wasserman and associates conducted a study that determined the frequency of the identification of attentional hyperactivity problems in primary care. PCPs reported using the following methods to aid in their assessments of children with attentional and hyperactivity problems: (a) parent interviews, 87.1%; (b) child interviews, 66.6%; (c) school reports, 53.5%; (d) observations, 47.3%; and (e) standardized assessment tools, 36.9%. DSM criteria were used in 38.3% of the assessments. The diagnosis made by another health care provider was used in 28.9% of the assessments. PCPs were also relying primarily on interviews of the parents and children and to a lesser extent on reports from school in making their assessments of psychosocial problems (Jellinek & Murphy, 1990; Wasserman et al., 1999).

Screening tests have a natural and important place in pediatric practice. Psychosocial screening should be as much a part of the visit as the growth chart or the Denver Developmental Screening Test. Screening is the first step in a process that helps APRNs identify if a psychosocial problem exists (e.g., ADHD). After screening, APRNs likely conduct a brief interview with the child and parent, assess the severity and specific nature of the presenting disorder, and decide whether a referral or follow-up visit is indicated (Jellinek & Murphy, 1990). Although

screening for psychosocial problems using a standardized measurement of a child's symptoms has been shown to accurately identify children with ADHD (Murphy et al., 1998), no specific standardized measure has been recommended for APRNs. The relative paucity of research conducted in primary care settings has limited the knowledge base available for APRNs to use in improving the health care of children and adolescents (Wasserman, Slora, & Bocian, 1998).

Although children with ADHD can be very successful in their lives, without early identification and proper diagnosis ADHD may have serious consequences, including school failure, depression, and substance abuse. Early identification and treatment are extremely important for these children.

Referral of Psychosocial Disorders

Only a fraction of children with psychosocial problems actually receive additional treatment or a referral (Costello et al., 1988; Goldberg et al., 1984; Murphy, Reede, Jellinek, & Bishop, 1992). The most common clinician-reported reasons for nonreferral include (a) the PCP was able to manage the patient in his or her primary practice (46%); (b) the patient was already receiving services (35%); (c) the problem was self-limiting (15%); and (d) the patient/parent refused and cited a lack of need (3%) (Rushton et al., 2002).

Horwitz and colleagues (1992) reported that psychosocial problems rated as moderate or severe were more likely to be referred when compared with problems rated as mild. Goldberg and associates (1984) provided a more detailed breakdown of referrals by PCPs. They showed that the referral rates were approximately equal

in proportion to psychologists, school mental health personnel, social workers and agencies, and psychiatrists or psychiatric clinics. Most psychosocial problems are initially managed in primary care without referral; however, referral is an important component of care for patients with severe problems. The roles that APRNs, family physicians, pediatricians, and other PCPs play have continued to evolve with managed care and changes in health care organizations. PCPs play a major role in the mental health system as they provide appropriate counseling and treatment within the primary care system. "In addition, these providers serve as gatekeepers to determine access to specialty mental health care and can function as coordinators of mental health services and referrals" (Rushton et al., 2002, p. 595). Ideally, APRNs should be able to make an appropriate assessment and diagnosis of ADHD symptoms. In addition, they should be able to refer their pediatric patients to mental health and other specialties when deemed necessary.

Summary

The literature demonstrates concern for the overdiagnosis and misdiagnosis of ADHD and the comorbidities that are frequently encountered occurrences with this childhood disorder. With the selective review of the diagnostic assessment methods used to diagnose ADHD, the tribulations associated with the diagnostic assessment methods used by PCPs were addressed. In the literature review, the identification and diagnosis of ADHD by PCPs and the need for standardized assessment measures for PCPs to utilize to assist them in the early diagnosis of ADHD were also highlighted. Further investigation is needed to offer a more

detailed focus of APRNs' use of diagnostic assessment methods utilized in the evaluation and early diagnosis of ADHD in children.

CHAPTER 3

METHODS

Design

This nonexperimental, exploratory research study used a self-administered questionnaire to gather data from APRNs. The purpose of this thesis was to explore diagnostic practices among APRNs in Utah who encountered children suspected of having an ADHD diagnosis. The role APRNs play in the early identification and diagnosis of children with ADHD symptoms was assessed to determine the following: (a) if they diagnosed ADHD in their practices, (b) if they treated ADHD in their practices, and (c) if they used standardized diagnostic methods to make a diagnosis of ADHD. The diagnostic assessment methods most commonly utilized by APRNs and their perceptions of these measurement scales were recognized. Provider suggestions for standardizing ADHD diagnostic practices were addressed, and demographic information about the participating APRNs was gathered. The tribulations associated with the use of current diagnostic practices in the diagnosis of ADHD were acknowledged.

Setting

The setting took place in Utah and included all APRNs who responded to a mailed questionnaire. The responding APRNs worked in many practices, including

but not limited to family practice, private practice, child and adolescent psychiatry, pediatric clinic, primary and emergency care, and rural care.

Population/Sample

The population for this study included all APRNs in Utah who were located on the mailing list obtained from the Division of Occupational and Professional Licensing and included 926 individuals. The sample was a nonprobability purposive sample of all APRNs located on the mailing list obtained from the Division of Occupational and Professional Licensing and who diagnosed children with ADHD, treated the disorder, or did both. The sample size consisted of 101 APRNs.

Ethical Consideration

Approval by the University of Utah's Institutional Review Board (see Appendix C) was sought for this research study. The study was considered exempt. However, all information was kept confidential; subjects' names did not appear in the reported findings. The names of APRNs surveyed were kept in a locked filing cabinet during the research process. The list was destroyed to maintain confidentiality of the responding APRNs. The subjects were not instructed to put their names on the questionnaires nor required to put their return addresses on the envelopes.

Complete anonymity and confidentiality of the participants were permitted. Individuals who answered and returned the questionnaires remained anonymous.

The information was reported as aggregate; therefore, no one will be able to link the subjects with the information given.

Instrumentation

After an extensive review of the literature, a questionnaire was developed entitled "Attention-deficit/Hyperactivity Disorder (ADHD) Diagnostic Assessment Methods Utilized in Primary Care" (see Appendix D). This 17-item questionnaire identified diagnostic assessment methods utilized by APRNs in Utah. The questionnaire had three descriptive statistic demographic questions, eight nominal questions, three interval questions, and three open-ended questions.

Reliability is the consistency of a measuring instrument, and validity determines whether or not a measurement instrument is measuring what it is reported to measure (LoBiondo-Wood & Haber, 2002). Reliability and validity testing were not established for the used questionnaire. Three APRNs who currently or historically diagnose children with ADHD were asked to review the questionnaire for content validity and give suggestions to ensure clarity. The APRNs indicated their agreement with the items on the questionnaire and the extent to which the items reflected the sought-after information. Suggestions from these APRNs were incorporated into the final questionnaire, which was distributed to APRNs on the Division of Occupational and Professional Licensing list.

Data Collection and Analysis

Each APRN was asked to answer the brief paper-and-pencil questionnaire, which would take approximately 10 to 15 minutes, and to return the completed questionnaire within 3 weeks. Each envelope contained a questionnaire, cover letter (see Appendix E), and a self-addressed return envelope.

After APRNs completed and mailed back the questionnaire, data were gathered and entered into the Statistical Package for the Social Sciences (SPSS). Descriptive statistics (measures of central tendency) were used to describe the (a) sample, (b) level of education of participating APRNs, (c) setting APRNs work in, (d) years of practicing as an APRN, (e) percentage of APRNs who diagnose and treat ADHD in their practices, (f) comfort level of diagnosing and treating ADHD, (g) percentage of all visits that the sample population encounters of children between 4 and 18 years old with ADHD, and (h) referral practices of APRNs.

The data also illustrate the diagnostic assessment methods utilized most frequently by APRNs and the perceived accuracy of these methods. The preference of the diagnostic assessment techniques used in APRNs' practices with the rationale and problems encountered with utilization of these methods are expressed by using the narrative responses of the APRNs.

Suggestions from APRNs with regard to standardizing ADHD diagnostic practices in primary care were provided. The question if further education should be required in order to make an initial diagnosis of ADHD was also addressed.

The relationship between which diagnostic methods APRNs preferred to use and why was examined.

Procedure

A review of literature was conducted to explore the role of the APRN in the early identification and diagnosis of ADHD by assessing for standardized diagnostic practices of PCPs. Other topics explored in the literature review included (a) overdiagnosis and misdiagnosis of ADHD, (b) a selected review of current diagnostic methods PCPs utilize in practice, (c) tribulations with these diagnostic methods, (d) identification of psychosocial problems in primary care, (e) diagnosis of ADHD in primary care practice, and (f) referral of psychosocial disorders by PCPs.

After being exempted by the Institutional Review Board, all APRNs on the Division of Occupational and Professional Licensing list were mailed a packet containing (a) a cover letter (explaining the purpose of the study), (b) a questionnaire, and (c) a self-addressed, stamped envelope for return of the completed questionnaire. The cover letter contained a request to return the completed questionnaire within a 3-week period. Return of the questionnaire indicated the APRNs' consent to participate in the research study. The completed questionnaires were returned, and thank you/reminder postcards (see Appendix F) were sent to the APRNs after a 3-week interval had passed from the first mailing.

Projected Outcome of the Thesis

The projected outcome of this study was the data addressing the diagnostic practices among APRNs in Utah who encountered children suspected of having an ADHD diagnosis. This examination would make obvious the lack of standardized ADHD diagnostic practices of APRNs. The research questions were answered.

Assumptions

Prior to initiating this study, the following assumptions were made:

1. Children are diagnosed with ADHD.
2. ADHD diagnoses are prevalent in practices where APRNs are employed.
3. APRNs in Utah recognize children with symptoms of ADHD and provide early identification and diagnosis of this disorder.
4. Misdiagnosis, overdiagnosis, or underdiagnosis of ADHD in primary care occurs often.
5. The current subjective diagnostic assessment methods are confusing, have limitations, and are not always utilized by APRNs.
6. No set standardized assessment methods exist for APRNs to utilize in the diagnosis of ADHD in children.

Limitations

Prior to initiating this study, the following limitations were identified:

1. By studying the Utah population, it needs to be acknowledged that results found with APRNs might not be the standard for all states or APRNs who make diagnoses of children with ADHD symptoms.
2. This study focused on the APRNs' role in the early identification and diagnosis of children with ADHD. Therefore, a bias was seen for the APRNs studied.
3. The questionnaires were not completed by all APRNs who diagnose and treat children with ADHD. Therefore, the results of this study may be skewed.
4. A few APRNs may not have been candid in answering the questions posed by the questionnaire.
5. Due to the fact that a nonprobability purposive sampling was utilized, the more heterogeneous the population, the greater the possibility of bias being introduced into the selection (LoBiondo-Wood&Haber, 2002).

CHAPTER 4

RESULTS

Introduction

The purpose of this study was to explore the diagnostic practices among APRNs in Utah who encounter children suspected of having an ADHD diagnosis. The list of APRNs was obtained from the Division of Occupational and Professional Licensing.

The total number of questionnaires mailed was 926; of those sent, 526 were returned. However, 82 questionnaires were returned, uncompleted, with some type of "wrong address" comment on the envelopes. Therefore, the total number of completed questionnaires was 444 for a response rate of 48 %. Of the 444 responding APRNs, 311 (62%) were disqualified as they reported having never diagnosed children with ADHD, treated the disorder, or both. Twenty-one of the returned questionnaires were disqualified as they treated or diagnosed adults only with ADHD, and 11 were returned after the deadline of January 15, 2004 (approximately 8 weeks after the first mailing date of November 27, 2003). This date was selected because it allotted 3 weeks for the APRNs to complete the questionnaire after it was sent out the first time and another 3 weeks to complete the questionnaire after a thank you/reminder postcard was mailed (December 18, 2003). The total number of participants in the study was 101, approximately 11%

of the total population.

Demographics

The study group consisted of 101 APRNs who diagnosed children with ADHD, treated the disorder, or did both. Most of the respondents were family nurse practitioners (58.4%). The respondents could check more than one category; therefore, the totals do not equal 100 (see Table 1). For example, if one APRN had obtained a pediatric nurse practitioner license and also an adult nurse practitioner license, he or she would report both by placing a check mark in the corresponding boxes.

The years in practice of the participating APRNs ranged from 2 months to 27 years, with a mean of 7.9 years and a standard deviation of 6.6 years. The majority of APRNs was employed in a family practice setting (32.7%). The types

Table 1

License/Degree Earned by APRNs

License/degree	earned ^a	<i>n</i>	%
Family nurse practitioner		59	58.4
APRN/clinical nurse specialist		24	23.8
Pediatric nurse practitioner		17	16.8
Adult nurse practitioner		2	2.0
Certified nurse midwife		1	1.0

Respondents could check more than one category; therefore, totals do not equal 100%.

of practice settings in which the APRNs were employed are located in Table 2.

Diagnoses and Treatment of ADHD in Practice Setting

Of the APRNs involved in this study, 83.2% reported they diagnosed children with ADHD within their practices, and the majority (52.5%) stated they were either *comfortable* or *very comfortable* in making this diagnosis (see Table 3). In order to make an initial diagnosis of ADHD, 66% of the APRNs reported that additional training should be required. Half of the responding APRNs reported they had additional training in diagnosing children with ADHD.

Of the APRNs surveyed, 98.0% reported they provide treatment for patients diagnosed with ADHD, and 64.4% reported being either *comfortable* or *very comfortable* with treating a child with an ADHD diagnosis (see Table 3).

Visits Involving Children With an ADHD Diagnosis

The APRNs were asked to estimate what percentage of all visits they encountered were for children between 4 and 18 years old with an ADHD diagnosis. The statistical mean was 16.5%, the mode was 5.0%, and the range was from 0% to 90%. The individual who reported 0% stated that she does not diagnose ADHD but does treat this disorder.

Likelihood of Referral for a Diagnosis

The APRNs were asked the question, "When you have a patient who you suspect has ADHD, how likely are you to refer that particular patient to another health care provider for *diagnosis*?" Half (49.5%) of the APRNs responded they

Table 2

Types of Practice Settings

Practice setting	<i>n</i>	%
Family practice	33	32.7
Private practice	17	16.8
Child and adolescent psychiatry ^a	16	15.9
Pediatric clinic ^b	8	8.0
Primary and emergency care ^c	4	4.0
Rural care ^d	3	3.0

Note. Similar categories were combined to help make the information concise.

^aChild and adolescent outpatient psychiatric clinic categories were combined with categories inpatient psychiatric and mental health clinic.

^bPediatrics and pediatrics clinic categories were combined.

^cPrimary care and primary/emergency care categories were combined.

^dRural urgent care and rural ambulatory care categories were combined.

Table 3

Comfort Level With Making a Diagnosis and Treating ADHD

Description ^a	Diagnosis		Treating	
	<i>n</i>	%	<i>n</i>	%
1	1	1.0	1	1.0
2	8	7.9	8	7.9
3	26	25.7	27	26.7
4	25	24.8	34	33.7
5	28	27.7	31	30.7

^aJudgments were made on a 5-point Likert-type scale (1 = *very uncomfortable* to 5 = *very comfortable*).

were *very unlikely to unlikely* to refer the patient for a diagnosis; however, 39 (38.7%) of the APRNs reported they were *likely to very likely* to refer the patient (see Table 4).

Referral Practices of APRNs

The APRNs were asked, "If you refer patients, what percentage of children do you refer?" The APRNs indicated that 32% refer their patients to another health care provider. They were also asked to which health care providers they refer their patients with ADHD. The majority of APRNs referred patients with ADHD to a psychologist (49.5%) or a psychiatrist (43.6%) (see Table 5).

Table 4

Likelihood of Referral for a Diagnosis

Responses	<i>n</i>	%
Very unlikely	18	17.8
Unlikely	32	31.7
Neither	12	11.9
Likely	14	13.9
Very likely	25	24.8

Table 5

Referral Practices of APRNs

Description	<i>n</i>^a	%
Psychologist	50	49.5
Psychiatrist	44	43.6
School mental health	27	26.7
Social worker	18	17.8
Pediatrician/service specializing in ADHD	16	15.8
Psychiatric clinic	15	14.9
Other type of clinician	8	7.9

^aRespondents could check more than one category; therefore, totals do not equal 100%.

Information Received Regarding ADHD

The APRNs were asked to indicate where they received the educational information they acquired regarding ADHD (see Table 6). The majority (73%) reported obtaining information about ADHD from seminars and from additional education and training (67.3%). The APRNs could check more than one category; therefore, the totals do not equal 100.

Diagnostic Methods Used and Their Reported Accuracy

The APRNs were asked to answer a two-part question about which diagnostic methods they used to diagnose ADHD and to rate their perceived

Table 6

Information Received Regarding ADHD

Description	<i>n</i> ^a	%
Seminars about ADHD	73	72.3
Information from additional education/training	68	67.3
Information provided by nurse practitioner program	67	66.3
Information from other sources ^b	52	51.5
ADHD workshops	41	40.6

^aRespondents could check more than one category; therefore, totals do not equal 100%

^bOther sources included but were not limited to own course of learning/reading; practicum as APRN intern; or working as a registered nurse, one-on-one discussion with a psychiatrist, personal experience, or drug company information packets.

accuracy of these particular methods. Parent interviews (90%), observations of the child (90%), child interviews (87%), school reports (86%), and DSM-IV criteria (64%) were the top five methods used by the responding APRNs (see Table 7). Accuracy was measured by having the APRNs rate the diagnostic methods on a 5-point Likert-type scale (1 = *very inaccurate* to 5 = *very accurate*). The highest reported rate of accuracy was the Vanderbilt Assessment Scale (4.3) (see Table 7).

Diagnostic Methods APRNs Preferred To Use and Reasons Why

When asked which diagnostic assessment methods they *preferred* to use, the APRNs' top four responses were the following: (a) Conners' Rating Scale (15.8%), (b) parent/patient interviews (15.8%), (c) Vanderbilt Assessment Scale (7.9%), and (d) DSM-IV criteria (6.9%). A few APRNs (21.9%) reported multiple measures are required to diagnose ADHD and did not select a single preferred diagnostic method for this question. The reasons why they preferred these particular diagnostic methods are outlined in Table 8.

Problems Encountered With ADHD Diagnostic Assessment Methods

In the questionnaire, the APRNs were asked what problems they had encountered (if any) with the ADHD diagnostic assessment methods they previously had used to make a diagnosis. The two major problems encountered were reported as provider subjectivity/objectivity (13.9%) and comorbidities (12.9%). Other problems were reported. Some of these responses are included in

Table 7

Diagnostic Methods Used and Their Reported Accuracy

Diagnostic method	<i>n</i>	%	Accuracy ^a	
			Mean	<i>SD</i>
Parent interview	91	90.1	3.7	0.8
Observation	90	89.1	3.5	0.9
Child interview	87	86.1	3.4	0.9
School report	86	85.1	3.6	0.7
DSM-IV	64	63.4	4.0	0.8
Diagnosis made by someone else	62	61.4	3.2	0.8
Conners' Teacher Rating Scale	54	53.5	3.9	0.7
Conners' Parent Rating Scale	52	51.5	3.8	0.7
Achenbach Child Behavior Checklist	29	28.7	3.6	0.9
Children's Global Assessment Scale	29	28.7	3.5	0.9
Pediatric Symptom Checklist	24	23.8	3.5	0.3
Vanderbilt Assessment Scale	18	17.8	4.3	0.8
Other method	11	10.9	4.0	0.9
Consultation with another clinician	3	3.0	0.2	0.2

^aJudgments were made on a 5-point Likert-type scale (1 = *very inaccurate* to 5 = *very accurate*).

Table 8

Top Four Diagnostic Methods APRNs Preferred To Use and Reasons Why

Reasons why	Methods preferred			
	Conners' Rating Scale (%)	Parent/patient interview (%)	Vanderbilt Assessment Scale (%)	DSM-IV (%)
Accurate evaluation of comorbidities	--	--	57.1	--
Minimal gray area	14.3	--	--	--
Brief but concise	14.3	6.7	--	--
Better weight and accuracy	14.3	40.0	85.7	26.8
Organized and easily understandable	--	13.3	--	--
Most familiar with	14.3	6.7	--	--
Comprehensive, validated	--	13.3	--	--
Most objective	42.9	6.7	--	--

Note. Dashes indicate data were not reported.

Table 9. Some individuals (5%) reported that they encountered no problems with ADHD diagnostic assessment measures.

Suggestions Regarding Standardizing ADHD
Diagnostic Assessment Methods

APRNs were asked to provide suggestions regarding standardizing ADHD diagnostic assessment methods for PCPs (see Table 10). The greatest response was that APRNs should screen for ADHD symptoms, but the final diagnosis should be made by a psychiatric specialist (10.9%). In order to make the information concise, only the top five suggestions are provided in Table 10, as the other responses had only a frequency of once or twice.

Table 9

Problems Encountered With ADHD Diagnostic Assessment Methods

Problems encountered	<i>n</i>	%
Provider subjectivity/objectivity	14	13.9
Comorbidities	13	12.9
Lengthy/complicated	7	6.9
Inconsistent information or differences between parents' and teachers' reports ^a	5	5.0
No problems with the ADHD diagnostic assessment methods	5	5.0
Inaccuracies and bias	3	3.0
Diagnosis too often rushed	2	2.0
Parents and teachers may exaggerate answers asked on the questionnaires/scales	2	2.0
Parent self-perceived signs of ADHD are projected into the screening process	2	2.0
Parents may misinterpret questions on certain questionnaires/scales	1	1.0
Too many methods used by practitioners	1	1.0
Methods used to make a diagnosis are accurate	1	1.0
School assessment has too many people involved	1	1.0

^aCombined comments to help make the information concise: (a) inconsistent information provided by schools with (b) differences between parents' and teachers' reports.

Table 10

Suggestions Regarding Standardizing ADHD Diagnostic Assessment Methods

Suggestions	<i>n</i>	%
APRN screens but diagnosis made by psychiatric specialist	11	10.9
Need for standardization of a particular screening tool/method for APRN to utilize	9	8.9
Utilize multidisciplinary team/approach for diagnoses ^a	8	7.9
Formal training needed to diagnose ADHD	5	5.0
Consider comorbidity	5	5.0

^aCombined comments to help make the information concise: (a) used in-depth multidisciplinary diagnoses, (b) did not rely only on scales for diagnosis, and (c) diagnosis was based on more than one approach.

CHAPTER 5

DISCUSSION

Introduction

The purpose of this study was to explore the diagnostic practices among APRNs in Utah who encountered children suspected of having an ADHD diagnosis. The role APRNs play in the early identification and diagnosis of children with ADHD symptoms was assessed by the following criteria: (a) if they diagnosed ADHD in their practices, (b) if they treated ADHD in their practices, and (c) if they used standardized diagnostic methods to make a diagnosis of ADHD in their practices.

Limitations

Several limitations were discovered with this study. First, the list of APRNs who practice in Utah, which was obtained from the Division of Occupational and Professional Licensing, had a few incorrect addresses. Eighty-two out of the 926 questionnaires were returned by the U.S. Postal Service with the following remarks: (a) attempted but not known, (b) unable to forward, (c) not deliverable as addressed, (d) change of address (with no forwarding address), (e) no such number, (f) not at this address, and (g) wrong address. Other questionnaires were returned by the APRNs with the following remarks: (a) no longer practicing as an APRN,

(b) never practiced as an APRN in Utah, (c) retired (1 respondent reported being retired for more than 13 years), and (d) deceased. These responses suggest the possibility that other nonpracticing or retired APRNs received the questionnaires but did not return them because of these explanations. Therefore, the response rate may have been increased if the Division of Occupational and Professional Licensing list was current.

Second, after evaluating the responses to the questionnaire in retrospect, a few revisions could have been made to improve the information obtained. The following possible revisions were noted:

1. The questionnaire focused upon the nurse practitioner title and did not address all titles within the APRN category. This lack of addressing all APRNs may have been confusing to those participating who had certifications other than a nurse practitioner license.
2. The question "How long have you been a nurse practitioner?" permitted two spaces to be filled in: (a) one for the year and (b) one for the month. Some individuals reported only in years and left space blank for months. Therefore, this omission may have had an influence on the reported years as practicing as an APRN.
3. The question that asked the APRNs what percentage of children they refer for diagnosis and treatment was not clear enough as to why they may have been referring. They may have been referring a patient suspected of having ADHD for diagnosis, treatment, or other

reasons such as comorbid psychiatric conditions; behavior that has not responded to stimulants; or extremely difficult problems in their relationships with peers, teachers, or family members.

4. The APRNs were asked to acknowledge where they received educational information about ADHD. Some of the answers they chose from were similar in nature such as seminars about ADHD and ADHD workshops. This similarity may have been confusing for the responding APRNs. They may not have checked a particular response because of this confusion, or they may have checked both responses—unsure as to the differences of the two.
5. Question 15 listed 11 methods to diagnose ADHD, with an opportunity to fill-in an "other" method that was not currently listed on the questionnaire to choose from. For the "other" category, some participants reported using the Vanderbilt Assessment Scale in their practices. Because this assessment method was not made available to all APRNs to check, the results may have been skewed. If the Vanderbilt Assessment Scale was included on the questionnaire, possibly more APRNs may have selected this method resulting in data that reflected an increased use of this scale. Question 15 needs to be revised to include the Vanderbilt Assessment Scale as one of the diagnostic assessment options used to diagnose ADHD.

The third limitation noted with this study was a few of the responding APRNs (23.8%) were certified nurse specialists with psychiatric clinical backgrounds. This psychiatric background could have skewed the responses as they may have more clinical experience with ADHD and may be more comfortable with the assessment methods used to diagnose ADHD. Therefore, the results are not generalizable to all APRNs in Utah who diagnose ADHD.

The fourth limitation is that it is not clear which of the Conners' Rating Scale was preferred by the APRNs. When answering the question as to which diagnostic assessment method they preferred to use, the individuals who reported "Conners' Rating Scale" did not clarify which scale, the Conners' Teacher Rating Scale or the Conners' Parent Rating Scale, they favored. This response may have skewed the results, making the Conners' Rating Scale actually rate higher than it would have if the respondents were more specific in answering the question.

Interpretation

The results of this study imply that the majority of APRNs in Utah who diagnose and treat children with ADHD are family nurse practitioners (58.4%) who are employed in a family practice setting (32.7%). APRNs diagnose children with ADHD 83.2% of the time and treat this disorder 98.0% in their practices. Most APRNs reported that they were *very comfortable* to *comfortable* with making an ADHD diagnosis (52.5%), and 64.4% reported the same level of comfort for the treatment of ADHD. This response indicates that the majority of APRNs who work with children are comfortable with diagnosing and treating ADHD.

The data obtained indicate that APRNs are more likely to refer a patient to a psychologist (49.5%) or a psychiatrist (43.6%) than to a school mental health worker (26.7%) or a social worker (17.8%). These results are inconsistent with the data found in the literature review. Goldberg and colleagues (1984) reported that the referral rates of PCPs were approximately equal in proportion to psychologists, school mental health personnel, social workers, psychiatrists, and psychiatric clinics.

When asking the APRNs where they obtained the information they learned about ADHD, it was surprising that only 67% reported obtaining information from their nurse practitioner program versus 73% from seminars. This response could imply one of three reasons for an increased percentage reported for seminars: (a) ADHD is not being widely taught in nurse practitioner programs; (b) the APRNs did not choose this answer because it stated "nurse practitioner program" rather than "APRN program"; or (c) the APRNs answering this question may have been out of school for several years and may have been reporting where they most recently received the information on ADHD.

The American Academy of Pediatrics' (2000) clinical practice guideline was designed to assist PCPs in making an ADHD diagnosis. The American Academy of Pediatrics provided a framework for diagnostic decision making that was not intended to replace clinical judgment or establish a protocol for all children with this disorder but to provide recommendations for this condition (see Appendix A). When using this practice guideline and comparing it to Utah APRNs' reported diagnostic practices of children with ADHD, the APRNs followed the guidelines

more closely than did the PCPs (Wasserman et al., 1999). This conformity to the practice guidelines would imply that APRNs are knowledgeable, up-to-date with practice guidelines, and are useful members of the health care team in assessing for symptoms of ADHD in children.

Some of the problems encountered with the diagnostic assessment methods included (a) provider subjectivity (13.9%), (b) comorbidities (12.9%), (c) lengthy/complicated forms (6.9%), and (d) inconsistent information between parents' and teachers' reports (5.0%). These results imply that APRNs are experiencing similar problems with the diagnostic assessment methods encountered with PCPs (i.e., pediatricians and family physicians) (Chermak et al., 2002; Jensen & Larrieu, 1997; LeFever & Dawson, 1999; McGee & Share, 1988; Pennington et al., 1993; Wolraich et al., 1996).

A few of the respondents (10.9%) stated that an APRN's role in the diagnosis of ADHD should be aimed at making an initial diagnosis of ADHD, but a psychiatric specialist should make the formal diagnosis. These recommendations were comparable to the findings in the literature review with regard to PCPs' diagnostic practices of ADHD (Costello et al., 1988; Gardner et al., 2000). Because the highly structured psychiatric interviews are not the normal method of assessing psychosocial disorders in the primary care setting, PCPs should make an informal identification of a psychosocial problem rather than a formal diagnosis of the disorder (Costello et al., 1988; Gardner et al., 2000).

Significance To Nursing

Following established guidelines for the diagnosis of ADHD will improve children's long-term outcomes. Conversely, "Despite broad endorsement for using ADHD-specific behavior rating scales and DSM-IV criteria to diagnose and monitor ADHD, most primary care physicians use neither" (Smucker & Hedayat, 2001, p. 818). However, this study indicates that APRNs follow the American Academy of Pediatrics (2000) clinical practice guideline for the evaluation of children with ADHD more closely than do the PCPs (Wasserman et al., 1999). The clinical practice guideline states that the diagnosis of ADHD requires that the child meets DSM-IV criteria. PCPs such as pediatricians and family physicians used the DSM-IV criteria only 38.3% of the time (Wasserman et al., 1999), whereas APRNs used this method 63.4% of the time. In addition, the recommendations state that evidence should be directly obtained from parents or caregivers and from the classroom teacher. APRNs rated higher on both of these diagnostic assessment methods when compared to PCPs (see Table 11) (Wasserman et al., 1999).

APRNs are concerned about the early identification, intervention, and prevention of problems throughout their patients' childhoods. Staying abreast of important changes in health care is a continual process. If APRNs can uphold clinical practice guidelines, they will be recognized for their continual contribution to health care maintenance.

Table 11

Identification and Diagnosis of ADHD

Methods	Identification and diagnosis by PCPs (%)	Identification and diagnosis by APRNs (%)
Parent interviews	87.1	90.0
Child interviews	66.6	86.1
School reports	53.5	85.1
Observations	47.3	89.0
Standardized assessment tools	36.9	34.4
DSM criteria	38.3	63.4
Another health care provider was used	28.9	61.4

Theoretical Framework

The Shuler Nurse Practitioner Practice Model is a model that is unique to both medicine and nursing philosophy. APRNs need a model to help guide their practices that reflects their expanded nursing knowledge and skills of medicine. This model equips the APRN with a theoretically based guide for patient assessment consistent with the goal of providing primary health care services that are nursing oriented and complementary to medicine (Shuler & Huebscher, 1998).

APRNs must subjectively and objectively explore the multifaceted aspects related to the patient's chief complaint. In addition, APRNs should gather data exploring possible comorbid conditions. Mutually identifying unmet patient health

care needs is the first step in recognizing health problems, formulating diagnoses, and making health referrals. For example, APRNs can determine whether or not a patient's need for an ADHD diagnosis is met through a behavioral history combined with objective measures of parent interviews, teacher interviews, assessment scales, guidelines based on the DSM-IV criteria, and referral need. "Furthermore, conscious use of a model such as the Shuler Nurse Practitioner Practice Model has the potential for producing documentation that more completely reflects the nurse practitioner/patient interaction" (Shuler & Huebscher, 1998, p. 498).

Suggestions for Future Research

Suggestions for future research would be to obtain an up-to-date list of practicing APRNs in Utah by using another agency that would have a list of APRNs in Utah such as the American Nurses Association or Utah Nurse Practitioners. Using another agency may help to increase the return rate of the completed questionnaires; however, it may pose another problem, as only those individuals who belong to the aforementioned associations would be able to participate in the study.

Another suggestion would be to include subjects from similar educational backgrounds to answer the questionnaire such as all family nurse practitioners or pediatric nurse practitioners. This process may identify what diagnostic assessment methods are primarily utilized within these focused groups. It might also be of interest to focus on a sample population of APRNs who are employed in the same practice setting such as a primary care setting versus a specialized setting. This

focus may help identify the results more toward that particular population.

A national survey could be sent to the eastern and western United States to gain knowledge about their diagnostic assessment practices with children suspected of having ADHD. Then it would be possible to perform a regional analysis of the diagnostic assessment practices between the western and eastern areas of the United States. It would also be interesting to determine if diagnostic practices differ between the two tested samples.

Of the APRNs ($n = 14$) who use the Vanderbilt Assessment Scale to help diagnose ADHD, 85.7% reported that the scale had better weight and accuracy than did some of the other assessment scales. This scale was reported to have the highest score for accuracy among all of the rated methods. Future research could address this issue by gathering APRNs who have not used the Vanderbilt Assessment Scale in their practices and have them use it for a period of time to diagnose ADHD. Their responses to the perceived accuracy of this particular method could be studied.

It may be of interest to address the educational information provided in APRNs' curriculum and assess if ADHD is being taught nationwide to students. Not only the teaching of ADHD symptoms will be addressed, but rather the assessment methods available to help diagnose this prominent disorder. Researchers could focus their study regionally or nationally and analysis could be preformed.

Conclusion

The use of psychosocial screening tests should be a routine part of health maintenance visits for APRNs. This process will help serve the dual function of prevention and early recognition of psychosocial disorders in pediatric practice. Many children who present with ADHD symptomatology may be diagnosed inappropriately or not diagnosed at all because a comprehensive evaluation was not used (Magyary & Brandt, 2002). "However, evidence suggests that early identification and appropriate treatment can alter the probability of a negative development trajectory" (Magyary & Brandt, 2002, p. 553).

A practice guideline should be recommended for all APRNs to use when addressing children with psychosocial problems such as ADHD. For example, the American Academy of Pediatrics could recommend guidelines for APRNs to follow or the standard of practice for APRNs could be consistent with the American Academy of Pediatrics recommendations (see Appendix A). Caution must be taken to assess all symptoms of ADHD, with awareness of the overlapping appearance of symptoms and with differing underlying processes (Jensen & Larrieu, 1997). Diagnosis and treatment planning of ADHD should never be based solely on the results of a single diagnostic method. Diagnosis can be made reliably through the organized use of multimethod, multiinformant assessment techniques and appropriate diagnostic criteria (Morgan, Hynd, Riccio, & Hall, 1996).

The need to properly identify an ADHD diagnosis is an important factor when planning medication treatment, behavioral treatment, and goals for a child

with ADHD (LeFever & Dawson, 1999). Ideally, APRNs should be able to first make an appropriate assessment and then a diagnosis of ADHD symptoms, and they should also be able to refer their pediatric patients to mental health and other specialties when deemed necessary.

It is important to acknowledge what diagnostic assessment techniques APRNs are utilizing in their practice to identify this prevalent psychosocial childhood disorder. The proper identification and treatment of ADHD have proven to be beneficial for the child's long-term outcome. The relative paucity of research conducted in primary care settings, with a focus on APRNs, has limited the knowledge base available for practitioners to use in improving the health care of children. It is important that other studies are conducted that address the ever-prevalent ADHD diagnosis and APRNs' diagnostic practices of identifying and diagnosing these children.

APPENDIX A

SELECTIVE REVIEW OF CURRENT DIAGNOSTIC ASSESSMENT METHODS FOR THE EVALUATION OF ADHD

Barkley (1991) addressed the validity of assessment methods of ADHD symptoms. He recognized that teacher observations and rating scales are essential resources in the clinical evaluation of ADHD and, as later reported by Wolraich and associates (1996), have become valuable research tools as well. Lovejoy and Rasmussen (1990) evaluated the convergent and discriminant validity of vigilance measures of attention and impulsivity in children. The authors reported that parent-and-teacher rating scales were commonly utilized when assessing symptomatology of inattention and hyperactivity.

The CTRS is a 4-point, Likert-type scale with 28 items that yield a hyperkinesis index and scores on three factors: (a) Conduct Problems, (b) Hyperactivity, and (c) Inattention-Passivity. The CTRS is used for the diagnosis of ADHD. The child's parent and teacher complete the scale. A discrepancy score can be determined for the two completed questionnaires. On the basis of the severity of the symptoms, a determination may be made that the child is exhibiting symptoms corresponding with ADHD (Gumpel, Wilson, & Shalev, 1998; Lovejoy & Rasmussen, 1990).

The CPRS is a 48-item, parent-completed behavior rating checklist that is used to characterize the patterns of a child's behavior symptoms. The measure takes approximately 10 minutes for the child's parent to complete and yields 5 clinical scores (Conduct Problems, Learning Problems, Psychosomatic, Impulsive-Hyperactive, and Anxiety) and a separate Hyperactivity Index (Jensen & Larrieu, 1997; Lovejoy & Rasmussen, 1990).

The Children's Global Assessment Scale is a 100-point rating scale used to classify a child's current behavior (Walker et al., 1989). Scores on the continuum are rated from 1 (*lowest possible functioning*) to 100 (*superior functioning in all areas*). A cutoff score of less than 70 is used to identify the Children's Global Assessment Scale cases. "CGAS [Children's Global Assessment Scale] scores greater than or equal to 70 indicate normal functioning" (Walker et al., 1989, p. 135).

The Pediatric Symptom Checklist is a single-page, 35-item questionnaire that is completed by a parent who rates his or her child's symptoms as occurring *often* (2 points), *sometimes* (1 point), or *never* (0 points) to each answer and then tallying the total number of points. Pediatric Symptom Checklist scores of up to 27 points are considered within the normal range and scores of 28 points or greater suggest dysfunction and the need for further evaluation by PCPs (Murphy et al., 1992). A score above the cutoff point on the Pediatric Symptom Checklist does not indicate a specific diagnosis but does reflect a parental impression of the child's psychosocial functioning (Gardner et al., 2000; Jellinek & Murphy, 1990). The Pediatric Symptom Checklist has strong internal consistency, test-retest reliability, and validity (Murphy et al., 1992). The Pediatric Symptom Checklist was developed to address the problem of initial recognition by pediatricians of psychosocial dysfunction in school-age patients (Jellinek & Murphy, 1988).

Achenbach's Child Behavior Checklist for ages 6-18 (CBCL/6-18; formally CBCL/4-18) is a standardized, 118-item behavior problem checklist that obtains

reports from parents, close relatives, or guardians regarding children's competencies and behavioral/emotional problems. Parents rate their children for how true each item relates currently or within the past 6 months to their behaviors. The scale is rated as follows: 0 = *not true* (as far as you know), 1 = *somewhat or sometimes true*, and 2 = *very true or often true*. The checklist takes between 15 and 20 minutes for parents to complete and about 30 minutes to score. This in-depth screening instrument assesses social competence and behavior problems (Costello & Edelbrock, 1985; Walker et al., 1989). The CBCL has a sensitivity of 74% and specificity of 91% (Costello, 1986). Children too young for the CBCL/6-18 can use the *CBCL/VAS*.

After collecting information from all sources, the health-care provider analyzes the results to determine if the child's behavior meets the DSM-IV. The DSM-IV lists criteria for the diagnosis of ADHD characterized by inattention, impulsivity, and hyperactivity. These criteria are differentially diagnosed into one of three subtypes, allowing for a diagnosis based on symptoms either from a combined hyperactive-impulsive dimension or from inattentive behaviors (American Psychiatric Association, 1998; Clarke et al., 2002; Gumpel et al., 1998). The DSM-IV requires the child to manifest problems in at least two different settings (i.e., home, school, work, or socially) and suggests that multiple informants (i.e., teachers, parents, grandparents, baby-sitters, and parents of playmates) should be questioned to establish the diagnosis (Teicher, Ito, Glod, & Barber, 1996). Behavior must be maladaptive and inconsistent with the child's developmental level; in other

words, behaviors that are normal for a young child may be abnormal for an older child.

In 2000, the American Academy of Pediatrics, Committee on Quality Improvement, Subcommittee on Attention-deficit/Hyperactivity Disorder identified a clinical practice guideline that made recommendations for the evaluation of children with ADHD. The guideline contains the following recommendations for diagnosing ADHD:

1. In a child 6 to 12 years old who presents with inattention, hyperactivity, impulsivity, academic underachievement, or behavior problems, primary-care clinicians should initiate an evaluation for ADHD.
2. The diagnosis of ADHD requires that a child meets DSM-IV criteria.
3. The assessment of ADHD requires evidence directly obtained from parents or caregivers regarding the core symptoms of ADHD in various settings, age of onset, duration of symptoms, and degree of functional impairment.
4. The assessment of ADHD requires evidence directly obtained from the classroom teacher (or other school professional) regarding the core symptoms of ADHD, duration of symptoms, degree of functional impairment, and associated conditions.
5. Evaluation of the child with ADHD should include assessment for associated (coexisting) conditions.

6. Other diagnostic tests are not routinely indicated to establish the diagnosis of ADHD but may be used for the assessment of other coexisting conditions (e.g., learning disabilities and mental retardation).

APPENDIX B

PROBLEMS WITH DIAGNOSTIC ASSESSMENT MEASUREMENTS

Aaron and associates (2002) looked at ways to help separate cases of reading disabilities from reading deficits caused by ADHD-I behavior. The authors reported that the subjective assessment measurements used to distinguish these comorbid conditions were subjective in nature and all had their own weaknesses. The American Psychiatric Association (1998) reported, "Tests that require effortful mental processing have been noted to be abnormal in groups of individuals with ADHD compared with control subjects, but it is not yet entirely clear what fundamental cognitive deficit is responsible for this" (p. 81).

Studies have been conducted by many researchers who acknowledge that biases do exist with the use of subjective diagnostic methods utilized to diagnose ADHD. These biases represent only the informant's quantified opinion about that child's behavior (Aaron et al., 2002; Gumpel et al., 1998; Lovejoy & Rasmussen, 1990; Mayes & Bixler, 1993; Teicher et al., 1996; Wolraich et al., 1996). Wolraich and associates (1996) found only 52% agreement among teachers regarding ADHD diagnoses in children. In a double-blind study, Mayes and Bixler (1993) found no agreement among parents, teachers, and staff regarding ADHD diagnosis in children. In fact, raters were more likely to disagree than to agree (Aaron et al., 2002; Lovejoy & Rasmussen, 1990; Teicher et al., 1996). Kelleher and associates (1997) addressed the recognition of psychosocial problems in relation to insurance status and noted that the Pediatric Symptom Checklist is not a comprehensive diagnostic instrument and in fact may not detect all cases of psychosocial problems presenting to PCPs.

Gumpel and associates (1998) examined the CTRS's ability to help identify and diagnose ADHD symptoms. They recognized the different perceptions held of the ADHD phenomenon by parents and teachers and expressed different understandings of what ADHD is among different groups of respondents who have the disorder. Jellinek, Murphy, and Burns (1986) addressed a correlation between the CBCL and Pediatric Symptom Checklist. The authors reported that the CBCL and Parent Rating Scales were designed as intake questionnaires for the child mental health setting or for psychological research versus primary-care offices. These researchers also noted that the instruments included enough items to generate tentative diagnostic subscales that were probably not relevant for general screening purposes and not suitable for a busy office practice. The reason it was not suitable for primary-care offices was due to many questions, time to complete the form, and difficulty to score and interpret the results. Rating scales and checklists are only one component of a comprehensive evaluation that includes a medical examination and interviews.

Evaluations of DSM-based procedures are equally problematic. Rowland and colleagues (2002) addressed the prevalence of medication treatment for ADHD symptoms. These researchers reported that the ADHD category, nomenclature, and diagnostic criteria of the DSM have been revised several times over the past 10 years, illustrating the continued evolving nature of the concept. PCPs who use the DSM-IV in diagnosing ADHD may find a number of limitations of the diagnostic system (Aaron et al., 2002). Reason (1999) outlined relevant research of the

understanding of ADHD and acknowledged that the operational definitions of the word "often" in the DSM-IV criteria determine incidences and, consequently, outcomes of individual assessments. "The DSM-IV criteria preface all nine symptoms of ADHD with the words often or frequently" (Aaron et al., 2002, p. 6). No operational definition is given regarding how often is often used and how frequently is frequent used (Reason, 1999).

APPENDIX C

UNIVERSITY OF UTAH INSTITUTIONAL REVIEW
BOARD EXEMPTION OF DETERMINATION AND
CONSENT APPROVAL

MEMORANDUM

TO: Sheri Vlam
Nursing

FROM: Mark A. Munger, Pharm.D.
Chair

DATE: 11/10/03

SUBJECT: **Exemption Determination and Consent Approval**
Renewal Application: IRB 12102, "The utilization of ADHD diagnostic measurement methods in primary care"

Thank you for submitting your request for re-approval of this study. The Board has administratively reviewed your renewal application and determined that your study is exempt, under 45 CFR 46.101(b), from the Federal regulations governing human research. **Before implementing any changes in the study, you must submit an application to the Board and secure either approval or a new determination of exemption.**

It is the policy of the University of Utah that all human subject research which is exempt under this section will be conducted in accordance with (1) the Belmont Report (<http://ohrp.osophs.dhhs.gov/humansubjects/guidance/belmont.htm>), (2) this institution's administrative procedures to ensure valid claims of exemption, and (3) orderly accounting for such activities.

This determination of exemption only applies to the research study as submitted to the Board. Since this determination is not an approval, it does not expire or need renewal. Remember that all research involving human subjects must be approved or exempted by the Board before the research is conducted.

If you have any questions about this, please contact our office and we will be glad to assist you. Thanks again for submitting your proposal.

RB/nat

APPENDIX D

ADHD: DIAGNOSTIC ASSESSMENT METHODS UTILIZED
BY ADVANCED PRACTICE REGISTERED NURSES

1. Please check each degree that you have earned. Check all that apply.
 - ☐ PNP
 - ☐ FNP
 - ☐ PhD
 - ☐ Other (please specify): _____
2. How long have you been an advanced practice registered nurse (APRN)?
 _____ years _____ months
3. What type of setting do you practice in? Please specify:

4. In your practice as an APRN, do you diagnose attention-deficit/hyperactivity disorder (ADHD)?
 - ☐ Yes
 - ☐ No
 If no, please go to Question 6.
5. On a scale of 1 to 5 (1 = *very uncomfortable* to 5 = *very comfortable*), please rate your comfort level in making an ADHD diagnosis:

<i>Very uncomfortable</i>				<i>Very comfortable</i>
1	2	3	4	5
6. In your practice as an APRN, do you treat ADHD?
 - ☐ Yes
 - ☐ No
 If no, thank you for your time. Please return this questionnaire to the address located on the bottom of this survey. If yes, please continue.
7. On a scale of 1 to 5 (1 = *very uncomfortable* to 5 = *very comfortable*), please rate your comfort level in *treating* a patient diagnosed with ADHD.

<i>Very uncomfortable</i>				<i>Very comfortable</i>
1	2	3	4	5
8. Approximately what percentage of all visits that you encounter with children between the ages of 4 and 18 years old involves children with ADHD?
 _____% If unsure, please estimate.

9. When you have a patient who you suspect has ADHD, how likely are you to refer that particular patient to another health-care provider for *diagnosis*?
Check one response.
- ☐ Very unlikely
 - ☐ Unlikely
 - ☐ Neither
 - ☐ Likely
 - ☐ Very likely
10. If you refer patients, on average, what percentage of children do you refer?
____% If unsure, please estimate.
11. When you refer patients with ADHD, to whom do you refer? Check all that apply.
- ☐ Psychologist
 - ☐ School mental health personnel
 - ☐ Social worker
 - ☐ Psychiatrist
 - ☐ Psychiatric clinic
 - ☐ Other (please specify): _____
12. In general, please indicate educational information you have received regarding ADHD: Check all that apply.
- ☐ Information provided in your APRN program
 - ☐ Additional education/training
 - ☐ Seminars about ADHD
 - ☐ ADHD workshops
 - ☐ Other (please specify): _____
13. In your opinion, to make an *initial diagnosis* of ADHD, do you believe additional training for the APRN should be required?
- ☐ Yes
 - ☐ No
14. Have you had any special training in *diagnosing* ADHD?
- ☐ Yes
 - ☐ No

15. ***This is a two-part question.*** Below is a list of methods that health-care providers may use to diagnose ADHD. ***First***, please place a check mark in the box by each of the methods you currently use. ***Second***, for those methods you checked, please ***rate the accuracy*** of each method in making a correct ***diagnosis***. For example, if you believe the method you use is ***very accurate***, you would circle a 5 on the right side of the list. Only rate methods you use.

	Methods used	Very inaccurate				Very accurate
Parent interviews	<input type="checkbox"/>	1	2	3	4	5
Child interviews	<input type="checkbox"/>	1	2	3	4	5
School reports	<input type="checkbox"/>	1	2	3	4	5
Observation	<input type="checkbox"/>	1	2	3	4	5
DSM-IV	<input type="checkbox"/>	1	2	3	4	5
Children's Global Assessment Scale	<input type="checkbox"/>	1	2	3	4	5
Pediatric Symptom Checklist	<input type="checkbox"/>	1	2	3	4	5
Achenbach Child Behavior Checklist	<input type="checkbox"/>	1	2	3	4	5
Conners' Teacher Rating Scale	<input type="checkbox"/>	1	2	3	4	5
Conners' Parent Rating Scale	<input type="checkbox"/>	1	2	3	4	5
Diagnosis made by someone else	<input type="checkbox"/>	1	2	3	4	5
Other (please specify): _____						

16. Which diagnostic assessment method do you ***prefer*** to use? Please select only one: _____

Please briefly describe why you like to use this particular one:

17. What problems/issues have you encountered (if any) with the ADHD diagnostic assessment methods? Please be specific.

18. What suggestions (if any) do you have regarding standardizing ADHD diagnostic practices with primary-care providers?

Other comments:

Thank you for taking the time to complete this questionnaire. Your response is greatly appreciated.

Please send questionnaire to:

Mrs. Sheri Vlam
7375 South Paddington Road
West Jordan, Utah 84084

APPENDIX E

QUESTIONNAIRE COVER LETTER

Dear Sir or Madam:

As an advanced practice registered nurse (APRN), you have been selected to participate in this research study. I obtained a list of APRNs by writing for permission to the Division of Occupational and Professional Licensing.

I am a full-time student at the University of Utah, College of Nursing. I am currently enrolled in the pediatric nurse practitioner master's program offered by the University of Utah. I am conducting a study on attention-deficit/hyperactivity disorder (ADHD) in the pediatric population. This study is being conducted to explore the role the APRN plays in the early identification and diagnosis of children with ADHD by assessing for standardized diagnostic practices of primary-care providers. This study will also address the problems associated with these current diagnostic assessment methods that are used in primary-care practice.

Please complete the enclosed questionnaire, which will take approximately 15 minutes, and return it to me within 3 weeks. I have included a self-addressed, stamped envelope for your convenience. Please be as honest as possible. If there are any questions you do not wish to complete, just leave them blank. The return of the questionnaire is your consent to participate in this research study.

The fact that no one, including me, will be able to identify which individuals completed the questionnaires will ensure your confidentiality. Your name will not be used in association with your responses. The data/information that you provide on this questionnaire will be gathered, evaluated, and reported as grouped data. At the end of this study, the list obtained by the Division of Occupational and Professional Licensing will be destroyed.

If you have any questions or concerns regarding this study, please call Sheri Vlam at (801)255-5581 between 8:00 a.m. and 5:00 p.m. If you cannot reach me during this time period, please leave a message and I will return your call. If you have questions regarding your rights as a research subject, or if problems arise that you do not feel you can discuss with the investigator, please contact the Institutional Review Board Office at (801)581-3655.

Your response is entirely voluntary. Thank you for your cooperation and assistance with this endeavor.

Sincerely,

Sheri Vlam, RN, BSN
College of Nursing
University of Utah, College of Nursing

APPENDIX F

THANK YOU/REMINDER POSTCARD

I would like to take this opportunity to thank you for completing the questionnaire entitled "Attention-deficit/Hyperactivity Disorder (ADHD): Diagnostic Assessment Methods Utilized in Primary Care" sent to you approximately 3 weeks ago. Your contribution to this research study is greatly appreciated.

If you have not completed the questionnaire, please do so now. If you need another copy of the questionnaire, feel free to call me at (801)255-5581 and I will send you another copy with a postage-paid, return envelope for your convenience. Again, I thank you for your time and contribution.

Sincerely,

Sheri Vlam, RN, BSN

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